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10/827,527	04/20/2004	Dibyapran Sanyal	200400476-2 (LHGB 1509-49	2969

22879 7590 09/28/2007		EXAMINER
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ART UNIT	PAPER NUMBER
2193	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/827,527	SANYAL, DIBYAPRAN
	Examiner	Art Unit	
	Michael Yaary	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2007*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). ·

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-20 are pending in the application.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

3.   Claim 15 is rejected under 35 U.S.C 112, second paragraph because the claim is

unclear and indefinite as to the claim subject matter.

(i)   It is unclear as to which statutory class of invention the claim is directed to as

appears to overlap two different statutory classes, a device and a method, when the

claim should be directed to statutory class of invention in the alternative only. *Ex parte*

Lyell, 17 USPQ2d (Bd. Pat. App. & Inter. 1990.

(ii)   Claim 15 is indeed a dependent claim containing all the limitations of claim 1, but

is not consistent with claim 1 as claim 1 is a method claim and claim 15 is claiming a

computer readable medium or storing device. A suggested way to amend the claim

would be to rewrite it as, "A method according to claim 1, wherein said method steps

(a), (b), and (c) are stored on a computer readable storage medium, and when executed

by a processor, generate code for scheduling the execution of binary code translated

from a source format to a target format." Or it may be rewritten in a similar form.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Scalzi et al. (hereafter Scalzi)(US Pat. 6,075,937) in view of Bharadwaj (US Pat.

5,894,576).

6.   **As to claims 1 and 8,** Scalzi discloses a method of generating code for

scheduling the execution of binary code translated from a source format to a target

format, said method comprising the steps of:

(a)   identifying a set of target instructions semantically equivalent to a given

source instruction (Column 6, lines 9-19 and column 12, lines 18-21 disclose target

instructions equivalent to source instructions.).

7.   Scalzi does not disclose (b) identifying data dependencies in said target

instructions by analyzing the set of target instructions and (c) assigning an identifier to

one or more of said target instructions for use by a code analyzer in scheduling the

processing of said target instructions in accordance with identified data dependencies.

However, Bharadwaj discloses in an analogous art, (b) identifying data

dependencies in said target instructions by analyzing the set of target instructions

(Column 4, line 61-column 5, line 14 and column 6, lines 57-63 disclose analyzing for

data dependencies in the code.) and (c) assigning an identifier to one or more of said

target instructions for use by a code analyzer in scheduling the processing of said target

instructions in accordance with identified data dependencies (column 5, lines 14-27 and

column 7, lines 16-35).

8.   Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify the teachings of Scalzi, by identifying data dependencies

and assigning identifiers to the target instructions to be used by a code analyzer, as

taught by Bharadwaj, for the benefit of creating a translation system with increased

overall efficiency of the translated code.

9.   **As to claims 2 and 9,** Scalzi further discloses the set of target instructions is

identified in a translation template associated with a given source instruction, said

template being a component of a translator program for translating instructions in the

source form into instructions in the target format (column 5, lines 21-37 and column 5,

lines 61-67).

10.   **As to claims 3 and 10,** the combination of Scalzi and Bharadwaj disclose the

analysis of the target instructions is carried out prior to the compilation of the translation

templates into said translator program (Examiner is taking official notice that it would

have been obvious to one of ordinary skill in the art to analyze the target instructions

first, as it would have been necessary to identify the data dependencies in the target

instructions before obtaining the appropriate templates for the target instructions.).

11.   **As to claims 4 and 11,** the combination of Scalzi and Bharadwaj disclose the

identifiers are assigned to said target instructions prior to said translator program being

compiled (Bharadwaj, column 4, lines 25-55).

12.   **As to claims 5 and 12,** the combination of Scalzi and Bharadwaj disclose said

code analyzer optimizes the translated code for processing in a parallel processing

environment by using the identifiers (Bharadwaj, column 4, lines 21-25 and column 4,

lines 30-33).

13.   **As to claims 6 and 13,** the combination of Scalzi and Bharadwaj disclose data

dependencies are represented by a directed acyclic graph, and the identifying step

identifies said dependency signaling an appropriate edge in the set of target instructions

to said code analyzer (column 4, line 61-column 5, line 27 and column 6, lines 57-63).

14.   **As to claims 7 and 14,** the combination of Scalzi and Bharadwaj further

discloses each translation template is associated with a corresponding analysis routine

that generates said code for scheduling the execution of said translated code (Scalzi, column 5, line 61-column 6, line 19).

15.   **As to claim 15,** the combination of Scalzi and Bharadwaj disclose a computer readable medium or storage device storing coded indicia for causing a data processor arrangement to perform the method of claim 1 (Inherent in the combined system of Scalzi and Bharadwaj as some sort of software implemented computer program would be needed to perform the method.).

16.   **As to claim 16,** the claim is rejected for the same reasons as claims 1 and 2 above.

17.   **As to claim 17,** the combination of Scalzi and Bharadwaj disclose a binary code translator as to claim 16 to operate dynamically at run time of an application program being emulated (Bharadwaj, column 4, lines 21-30).

18.   **As to claims 18 and 19,** the combination of Scalzi and Bharadwaj disclose the code analyzer schedules the processing of said set of target instructions in accordance with the identified data dependencies (Bharadwaj, column 4, line 61-column 5, line 14).

19.   Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes (US Pat. 6,519,768).

20.   Hughes was cited in the previous office action dated 04/19/2007.

21.   **As to claim 20,** Hughes discloses an apparatus for translating machine

instructions in source code into equivalent target instructions of a code of target

platform, wherein the source code differs from the code of the target platform (abstract),

said apparatus comprising:

A source of binary translation templates for mapping instructions in the source

code into a set of instructions in the code of the target platform (abstract and column 2,

lines 1-2);

A fill and analysis routine generator arranged to be responsive to the templates

for generating fill and analysis routines for identifying fillable positions in a template and

for generating code to extract and deposit fields from the machine instructions in source

code into a precompiled template (column 2, line 66-column 3, line 65); and

A dynamic binary translator arranged to be responsive to the machine

instructions (column 3, lines 42-53).

22.   Hughes does not explicitly disclose parsing the template in order to identify

fillable positions in a template. However, it would have been obvious to one of ordinary

skill in the art to parse the template in order to be able to further analyze the code.

Response to Arguments

23.   Applicant's arguments with respect to claims 1-20 have been considered but are

moot in view of the new ground(s) of rejection.

Conclusion

24.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Michael Yaary whose telephone number is (571) 270-

1249. The examiner can normally be reached on Monday-Friday, 8:00 a.m - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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